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10/815,427

03/31/2004

Peter G. Tolchinsky

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05/02/2006

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EXAMINER

KUNEMUND, ROBERT M

ART UNIT

PAPER NUMBER

1722

DATE MAILED: 05/02/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/815,427

Applicant(s)

TOLCHINSKY ET AL.

Examiner

Robert M. Kunemund

Art Unit

1722

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-30 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1 and 20 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Oida et al (5,647,917).

The Oida et al reference teaches a method and wafer, which is cut, from an ingot, note entire reference. The ingot is placed in a cutting device and sawed to create wafers or substrates. The cutting is done at angles, which do not include 90. This changes the wafer properties, note col 5 lines 20 to 35.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was

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not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 2 to 4, 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Oida et al.

The Oida et al reference is relied on for the same reasons as stated, supra, and differs from the instant claims in the specific orientations. However, in the absence of unexpected results, it would have been obvious to one of ordinary skill in the art to determine through routine experimentation the optimum, operable orientations to be cut in the Oida et al reference in order to create the desired wafer orientation as the reference does teach that different orientation can be use and are within the skill of the art.

Claims 8, 9, 10, 22 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sato (6,375,738) in view of Oida et al.

The Sato et al reference teaches a method of creating an SOI structure, note entire reference. On a first substrate, a layer or layers can be growth. The grown layers can be epitaxial silicon and silicon dioxide, note examples. The structure is then bonded to another substrate. At a point in the first substrate which as been changed structurally, a separation is done so that the two substrates are separated with the grown structure on the second substrate, note examples. The sole difference between the instant claims and the prior art is the ingot cutting orientations. However, the Oida et al reference teaches cutting ingots at non-90 angles, note cite supra. It would have

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been obvious to one of ordinary skill in the art to modify the Sato reference by the teachings of the Oida et al reference to use different orientation in order to place a epitaxially structure of one orientation on a substrate with a different one changing the device properties.

Claims 11 to 16 and 24 to 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sato (6,375,738) in view of Oida et al.

The Oida et al and Sato references are relied on for the same reasons as stated, supra, and differs from the instant claims in the removal step and orientation. However, in the absence of unexpected results, it would have been obvious to one of ordinary skill in the art to determine through routine experimentation the optimum, operable orientations and removal in the Sato and Oida et al references in order to create the desired wafer orientation with no damage as the reference does teach that different orientation can be use and are within the skill of the art.

Claims 5 and 17 to 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sato (6,375,738) in view of Oida et al. and Henley et al (6,558,802)

The Oida et al and Sato references are relied on for the same reasons as stated, supra, and differs from the instant claims in the ion implantation. However, the Henley et al reference teaches ion implantation to create a damage layer to aid in separation of substrates, note col.3. It would have been obvious to one of ordinary skill in the art to modify the Sato reference by the teachings of the Henley et al reference to ion implant in order to increase the ease of separation placing less strain on the structure.

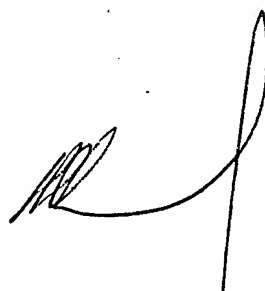
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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert M. Kunemund whose telephone number is 571-272-1464. The examiner can normally be reached on 8 hours.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Yogendra Gupta can be reached on 571-272-1312. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

RMK



ROBERT KUNEMUND
PRIMARY EXAMINER